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GERRITSEN, MARY

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Leu Ala Thr Cys Ser Ser Tyr Phe Arg Ala Met Phe Met Ser Gly Leu
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Ser Glu Ser Lys Gln Thr His Val His Leu Arg Asn Val Asp Ala Ala
 65                  70                  75                  80

Thr Leu Gln Ile Ile Ile Thr Tyr Ala Tyr Thr Gly Asn Leu Ala Met
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Asn Asp Ser Thr Val Glu Gln Leu Tyr Glu Thr Ala Cys Phe Leu Gln
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Val Glu Asp Val Leu Gln Arg Cys Arg Glu Tyr Leu Ile Lys Lys Ile
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Cys Glu Glu Leu Lys Gln Ser Ala Lys Arg Met Val Glu His Lys Phe
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Thr Ala Val Tyr His Gln Asp Ala Phe Met Gln Leu Ser His Asp Leu
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Asp Lys Ser Val Val Val Gln Gly Leu Tyr Lys Ser Met Pro Lys Phe
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Phe Lys Pro Arg Leu Gly Met Thr Lys Glu Glu Met Met Ile Phe Ile
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Glu Ala Ser Ser Glu Asn Pro Cys Ser Leu Tyr Ser Ser Val Cys Tyr
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Ser Pro Gln Ala Glu Lys Val Tyr Lys Leu Cys Ser Pro Pro Ala Asp
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Ala Gly Gly Gln Val Pro Leu Lys Asn Thr Lys Thr Asn His Ser Lys
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Thr Ser Lys Leu Gln Thr Ala Phe Arg Thr Val Asn Cys Phe Tyr Trp
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Cys Ala Trp Gln Trp Ser Ala Ala Val Val Val His Asp Cys Ile Tyr
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Thr Asn Ser Gly Ile Arg Leu Pro Ser Gly Thr Val Asp Gly Ser Ser
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Val Ile Ser Asn Ser Leu Cys Val Phe Met Arg Glu Thr His Leu Asn
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Glu Arg Ala Lys Tyr Val Thr Tyr Gln Tyr Asp Leu Glu Leu Asp Arg
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Trp Ser Leu Arg Gln His Ile Ser Glu Arg Val Leu Trp Asp Leu Gly
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Arg Asp Phe Arg Cys Thr Val Gly Lys Leu Tyr Pro Ser Cys Leu Glu
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Glu Ser Pro Trp Lys Pro Pro Thr Tyr Leu Phe Ser Thr Asp Gly Thr
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Leu Arg Gly Ile Leu Thr Asp Val Thr Leu Leu Val Gly Gly Gln Pro
         35                  40                  45

Leu Arg Ala His Lys Ala Val Leu Ile Ala Cys Ser Gly Phe Phe Tyr
     50                  55                  60

Ser Ile Phe Arg Gly Arg Ala Gly Val Gly Val Asp Val Leu Ser Leu
 65                  70                  75                  80

Pro Gly Gly Pro Glu Ala Arg Gly Phe Ala Pro Leu Leu Asp Phe Met
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Tyr Thr Ser Arg Leu Arg Leu Ser Pro Ala Thr Ala Pro Ala Val Leu
            100                 105                 110

Ala Ala Ala Thr Tyr Leu Gln Met Glu His Val Val Gln Ala Cys His
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Arg Phe Ile Gln Ala Ser Tyr Glu Pro Leu Gly Ile Ser Leu Arg Pro
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Pro Arg Arg Ser Glu Gly His Pro Asp Pro Pro Thr Glu Ser Arg Ser
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Cys Ser Gln Gly Pro Pro Ser Pro Ala Ser Pro Asp Pro Lys Ala Cys
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Asn Trp Lys Lys Tyr Lys Tyr Ile Val Leu Asn Ser Gln Ala Ser Gln
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Ala Gly Ser Leu Val Gly Glu Arg Ser Ser Gly Gln Pro Cys Pro Gln
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Ala Arg Leu Pro Ser Gly Asp Glu Ala Ser Ser Ser Ser Ser Ser Ser
225                 230                 235                 240

Ser Ser Ser Ser Ser Glu Glu Gly Pro Ile Pro Gly Pro Gln Ser Arg
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Leu Ser Pro Thr Ala Ala Thr Val Gln Phe Lys Cys Gly Ala Pro Ala
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Gln Asn Cys Glu Ala Val Ala Gly Cys Ser Ser Gly Leu Asp Ser Leu
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Val Pro Gly Asp Glu Asp Lys Pro Tyr Lys Cys Gln Leu Cys Arg Ser
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Ser Phe Arg Tyr Lys Gly Asn Leu Ala Ser His Arg Thr Val His Thr
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Gly Glu Lys Pro Tyr His Cys Ser Ile Cys Gly Ala Arg Phe Asn Arg
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Pro Ala Asn Leu Lys Thr His Ser Arg Ile His Ser Gly Glu Lys Pro
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Tyr Lys Cys Glu Thr Cys Gly Ser Arg Phe Val Gln Val Arg Ser Gln
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Pro Pro Ser Gly Phe Gln Gly Lys Pro Ala Arg Gly Gly Val Gly Gln
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Lys Gly Gly Phe Cys Ser Ser Gln Arg Gln Asp Leu Lys Ser Pro Pro
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Ser Gln Val Ala His Leu Arg Ala His Val Leu Ile His Thr Gly Glu
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Lys Pro Tyr Pro Cys Pro Thr Cys Gly Thr Arg Phe Arg His Leu Gln
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Thr Leu Lys Ser His Val Arg Ile His Thr Gly Glu Lys Pro Tyr His
465                 470                 475                 480

Cys Asp Pro Cys Gly Leu His Phe Arg His Lys Ser Gln Leu Arg Leu
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His Ile Leu Gly Gly Pro
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Cys Arg Trp Ser Ser Ser Gly Val Ile Pro Asn Glu Lys Ile Arg Asn
         35                  40                  45

Ile Gly Ile Ser Ala His Ile Asp Ser Gly Lys Thr Thr Leu Thr Glu
     50                  55                  60

Arg Val Leu Tyr Tyr Thr Gly Arg Ile Ala Lys Met His Glu Val Lys
 65                  70                  75                  80

Gly Lys Asp Gly Val Gly Ala Val Met Asp Ser Met Glu Leu Glu Arg
                 85                  90                  95

Gln Arg Gly Ile Thr Ile Gln Ser Ala Ala Thr Phe Thr Met Trp Lys
            100                 105                 110

Asp Val Asn Ile Asn Ile Ile Asp Thr Pro Gly His Val Asp Phe Thr
        115                 120                 125

Ile Glu Val Glu Arg Ala Leu Arg Val Leu Asp Gly Ala Val Leu Val
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Leu Cys Ala Val Gly Gly Val Gln Cys Gln Thr Met Thr Val Asn Arg
145                 150                 155                 160

Gln Met Lys Arg Tyr Asn Val Pro Phe Leu Thr Phe Ile Asn Lys Leu
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Asp Arg Met Gly Ser Asn Pro Ala Arg Ala Leu Gln Gln Met Arg Ser
            180                 185                 190

Lys Leu Asn His Asn Thr Ala Phe Met Gln Ile Pro Met Gly Leu Glu
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Gly Asn Phe Lys Gly Ile Val Asp Leu Ile Glu Glu Arg Ala Ile Tyr
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Lys Arg Ser Phe Thr Pro Val Phe Leu Gly Ser Ala Leu Lys Asn Lys
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Phe Val Gly Leu Ala Phe Pro Leu Glu Val Gly Arg Phe Gly Gln Leu
        355                 360                 365

Thr Tyr Val Arg Ser Tyr Gln Gly Glu Leu Lys Lys Gly Asp Thr Ile
    370                 375                 380

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Asp Ile Cys Ala Leu Phe Gly Ile Asp Cys Ala Ser Gly Asp Thr Phe
            420                 425                 430

Thr Asp Lys Ala Asn Ser Gly Leu Ser Met Glu Ser Ile His Val Pro
        435                 440                 445

Asp Pro Val Ile Ser Ile Ala Met Lys Pro Ser Asn Lys Asn Asp Leu
    450                 455                 460

Glu Lys Phe Ser Lys Gly Ile Gly Arg Phe Thr Arg Glu Asp Pro Thr
465                 470                 475                 480

Phe Lys Val Tyr Phe Asp Thr Glu Asn Lys Glu Thr Val Ile Ser Gly
                485                 490                 495

Met Gly Glu Leu His Leu Glu Ile Tyr Ala Gln Arg Leu Glu Arg Glu
            500                 505                 510

Tyr Gly Cys Pro Cys Ile Thr Gly Lys Pro Lys Val Ala Phe Arg Glu
        515                 520                 525
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Thr Ile Thr Ala Pro Val Pro Phe Asp Phe Thr His Lys Lys Gln Ser
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Asp Pro Glu Asp Tyr Thr Lys Leu Glu Phe Ser Asp Glu Thr Phe Gly
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Ser Asn Ile Pro Lys Gln Phe Val Pro Ala Val Glu Lys Gly Phe Leu
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Asp Ala Cys Glu Lys Gly Pro Leu Ser Gly His Lys Leu Ser Gly Leu
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Arg Phe Val Leu Gln Asp Gly Ala His His Met Val Asp Ser Asn Glu
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Ile Ser Phe Ile Arg Ala Gly Glu Gly Ala Leu Lys Gln Ala Leu Ala
625                 630                 635                 640

Asn Ala Thr Leu Cys Ile Leu Glu Pro Ile Met Ala Val Glu Val Val
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Ala Pro Asn Glu Phe Gln Gly Gln Val Ile Ala Gly Ile Asn Arg Arg
            660                 665                 670

His Gly Val Ile Thr Gly Gln Asp Gly Val Glu Asp Tyr Phe Thr Leu
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Tyr Ala Asp Val Pro Leu Asn Asp Met Phe Gly Tyr Ser Thr Glu Leu
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Arg Ser Cys Thr Glu Gly Lys Gly Glu Tyr Thr Met Glu Tyr Ser Arg
705                 710                 715                 720

Tyr Gln Pro Cys Leu Pro Ser Thr Gln Glu Asp Val Ile Asn Lys Tyr
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Val Ser Glu Val Val Arg Gly Ser Val Leu Leu Ala Lys Pro Lys Leu
        35                  40                  45

Ile Glu Pro Leu Asp Tyr Glu Asn Val Ile Val Gln Lys Lys Thr Gln
    50                  55                  60

Ile Leu Asn Asp Cys Leu Arg Glu Met Leu Leu Phe Pro Tyr Asp Asp
65                  70                  75                  80

Phe Gln Thr Ala Ile Leu Arg Arg Gln Gly Arg Tyr Ile Cys Ser Thr
                85                  90                  95

Val Pro Ala Lys Ala Glu Glu Glu Ala Gln Ser Leu Phe Val Thr Glu
            100                 105                 110

Cys Ile Lys Thr Tyr Asn Ser Asp Trp His Leu Val Asn Tyr Lys Tyr
        115                 120                 125

Glu Asp Tyr Ser Gly Glu Phe Arg Gln Leu Pro Asn Lys Val Val Lys
    130                 135                 140

Leu Asp Lys Leu Pro Val His Val Tyr Glu Val Asp Glu Glu Val Asp
145                 150                 155                 160

Lys Asp Glu Asp Ala Ala Ser Leu Gly Ser Gln Lys Gly Gly Ile Thr
                165                 170                 175

Lys His Gly Trp Leu Tyr Lys Gly Asn Met Asn Ser Ala Ile Ser Val
            180                 185                 190

Thr Met Arg Ser Phe Lys Arg Arg Phe Phe His Leu Ile Gln Leu Gly
        195                 200                 205

Asp Gly Ser Tyr Lys Phe Glu Phe Leu Lys Asp Leu Gln Lys Glu Pro
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Lys Gly Ser Ile Phe Leu Gly Phe Leu Tyr Gly Val Ser Phe Arg Asn
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Asn Lys Val Arg Arg Phe Ala Phe Glu Leu Lys Met Gln Asp Lys Ser
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            260                 265                 270

Thr Ile Leu Asn Lys Ile Leu Gln Leu Asn Phe Glu Ala Ala Met Gln
        275                 280                 285

Glu Lys Arg Asn Gly Asp Ser His Glu Asp Asp Glu Gln Ser Lys Leu
    290                 295                 300

Glu Gly Ser Gly Ser Gly Leu Asp Ser Tyr Leu Pro Glu Leu Ala Lys
305                 310                 315                 320

Ser Ala Arg Glu Ala Glu Ile Lys Leu Lys Ser Glu Ser Arg Val Lys
                325                 330                 335

Leu Phe Tyr Leu Asp Pro Asp Ala Gln Lys Leu Asp Phe Ser Ser Ala
            340                 345                 350

Glu Pro Glu Val Lys Ser Phe Glu Glu Lys Phe Gly Lys Arg Ile Leu
        355                 360                 365

Val Lys Cys Asn Asp Leu Ser Phe Asn Leu Gln Cys Cys Val Ala Glu
    370                 375                 380

Asn Glu Glu Gly Pro Thr Thr Asn Val Glu Pro Phe Phe Val Thr Leu
385                 390                 395                 400

Ser Leu Phe Asp Ile Lys Tyr Asn Arg Lys Ile Ser Ala Asp Phe His
                405                 410                 415

Val Asp Leu Asn His Phe Ser Val Arg Gln Met Ile Ala Thr Thr Ser
            420                 425                 430

Pro Ala Leu Met Asn Gly Ser Gly Pro Glu Thr Gln Ser Ala Leu Arg
        435                 440                 445

Gly Ile Leu His Glu Ala Ala Met Gln Tyr Pro Lys Gln Gly Ile Phe
    450                 455                 460

Ser Val Thr Cys Pro His Pro Asp Ile Phe Leu Val Ala Arg Ile Glu
465                 470                 475                 480

Lys Val Leu Gln Gly Ser Ile Thr His Cys Ala Glu Pro Tyr Met Lys
                485                 490                 495

Ser Ser Asp Ser Ser Lys Val Ala Gln Lys Val Leu Lys Asn Ala Lys
            500                 505                 510

Gln Ala Cys Gln Arg Leu Gly Gln Tyr Arg Met Pro Phe Ala Trp Ala
        515                 520                 525

Ala Arg Thr Leu Phe Lys Asp Ala Ser Gly Asn Leu Asp Lys Asn Ala
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Arg Phe Ser Ala Ile Tyr Arg Gln Asp Ser Asn Lys Leu Ser Asn Asp
545                 550                 555                 560
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Asp Met Leu Lys Leu Leu Ala Asp Phe Arg Lys Pro Glu Lys Met Ala
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Lys Leu Pro Val Ile Leu Gly Asn Leu Asp Ile Thr Ile Asp Asn Val
            580                 585                 590

Ser Ser Asp Phe Pro Asn Tyr Val Asn Ser Ser Tyr Ile Pro Thr Lys
        595                 600                 605

Gln Phe Glu Thr Cys Ser Lys Thr Pro Ile Thr Phe Glu Val Glu Glu
    610                 615                 620

Phe Val Pro Cys Ile Pro Lys His Thr Gln Pro Tyr Thr Ile Tyr Thr
625                 630                 635                 640

Asn His Leu Tyr Val Tyr Pro Lys Tyr Leu Lys Tyr Asp Ser Gln Lys
                645                 650                 655

Ser Phe Ala Lys Ala Arg Asn Ile Ala Ile Cys Ile Glu Phe Lys Asp
            660                 665                 670

Ser Asp Glu Glu Asp Ser Gln Pro Leu Lys Cys Ile Tyr Gly Arg Pro
        675                 680                 685

Gly Gly Pro Val Phe Thr Arg Ser Ala Phe Ala Ala Val Leu His His
    690                 695                 700

His Gln Asn Pro Glu Phe Tyr Asp Glu Ile Lys Ile Glu Leu Pro Thr
705                 710                 715                 720

Gln Leu His Glu Lys His His Leu Leu Leu Thr Phe Phe His Val Ser
                725                 730                 735

Cys Asp Asn Ser Ser Lys Gly Ser Thr Lys Lys Arg Asp Val Val Glu
            740                 745                 750

Thr Gln Val Gly Tyr Ser Trp Leu Pro Leu Leu Lys Asp Gly Arg Val
        755                 760                 765

Val Thr Ser Glu Gln His Ile Pro Val Ser Ala Asn Leu Pro Ser Gly
    770                 775                 780

Tyr Leu Gly Tyr Gln Glu Leu Gly Met Gly Arg His Tyr Gly Pro Glu
785                 790                 795                 800

Ile Lys Trp Val Asp Gly Gly Lys Pro Leu Leu Lys Ile Ser Thr His
                805                 810                 815

Leu Val Ser Thr Val Tyr Thr Gln Asp Gln His Leu His Asn Phe Phe
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Gln Tyr Cys Gln Lys Thr Glu Ser Gly Ala Gln Ala Leu Gly Asn Glu
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Leu Val Lys Tyr Leu Lys Ser Leu His Ala Met Glu Gly His Val Met
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Ile Ala Phe Leu Pro Thr Ile Leu Asn Gln Leu Phe Arg Val Leu Thr
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Arg Ala Thr Gln Glu Glu Val Ala Val Asn Val Thr Arg Val Ile Ile
885 890 895

His Val Val Ala Gln Cys His Glu Glu Gly Leu Glu Ser His Leu Arg
900 905 910

Ser Tyr Val Lys Tyr Ala Tyr Lys Ala Glu Pro Tyr Val Ala Ser Glu
915 920 925

Tyr Lys Thr Val His Glu Glu Leu Thr Lys Ser Met Thr Thr Ile Leu
930 935 940

Lys Pro Ser Ala Asp Phe Leu Thr Ser Asn Lys Leu Leu Lys Tyr Ser
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Trp Phe Phe Phe Asp Val Leu Ile Lys Ser Met Ala Gln His Leu Ile
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Glu Asn Ser Lys Val Lys Leu Leu Arg Asn Gln Arg Phe Pro Ala Ser
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Tyr His His Ala Val Glu Thr Val Val Asn Met Leu Met Pro His Ile
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Phe Val Phe Lys Gln Ile Asn Asn Tyr Ile Ser Cys Phe Ala Pro Gly
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Cys Asn His Glu His Tyr Ile Pro Leu Asn Leu Pro Met Pro Phe Gly
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His Asn Pro Leu Met Lys Lys Val Phe Asp Val Tyr Leu Cys Phe Leu
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Tyr Ser Leu Ala Lys Ser Tyr Ala Ser Thr Pro Glu Leu Arg Lys Thr
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Trp Leu Asp Ser Met Ala Arg Ile His Val Lys Asn Gly Asp Leu Ser
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Glu Ala Ala Met Cys Tyr Val His Val Thr Ala Leu Val Ala Glu Tyr
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Leu Thr Arg Lys Glu Ala Val Gln Trp Glu Pro Pro Leu Leu Pro His
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Ser His Ser Ala Cys Leu Arg Arg Ser Arg Gly Gly Val Phe Arg Gln
1665 1670 1675 1680

Gly Cys Thr Ala Phe Arg Val Ile Thr Pro Asn Ile Asp Glu Glu Ala
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Ser Met Met Glu Asp Val Gly Met Gln Asp Val His Phe Asn Glu Asp
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Val Leu Met Glu Leu Leu Glu Gln Cys Ala Asp Gly Leu Trp Lys Ala
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Glu Arg Tyr Glu Leu Ile Ala Asp Ile Tyr Lys Leu Ile Ile Pro Ile
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Tyr Glu Lys Arg Arg Asp Phe Glu Arg Leu Ala His Leu Tyr Asp Thr
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Leu His Arg Ala Tyr Ser Lys Val Thr Glu Val Met His Ser Gly Arg
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Arg Leu Leu Gly Thr Tyr Phe Arg Val Ala Phe Phe Gly Gln Ala Ala
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Gln Tyr Gln Phe Thr Asp Ser Glu Thr Asp Val Glu Gly Phe Phe Glu
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Asp Glu Asp Gly Lys Glu Tyr Ile Tyr Lys Glu Pro Lys Leu Thr Pro
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Leu Ser Glu Ile Ser Gln Arg Leu Leu Lys Leu Tyr Ser Asp Lys Phe
1825 1830 1835 1840

Gly Ser Glu Asn Val Lys Met Ile Gln Asp Ser Gly Lys Val Asn Pro
1845 1850 1855

Lys Asp Leu Asp Ser Lys Tyr Ala Tyr Ile Gln Val Thr His Val Ile
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Pro Phe Phe Asp Glu Lys Glu Leu Gln Glu Arg Lys Thr Glu Phe Glu
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Arg Ser His Asn Ile Arg Arg Phe Met Phe Glu Met Pro Phe Thr Gln
1890 1895 1900

Thr Gly Lys Arg Gln Gly Gly Val Glu Glu Gln Cys Lys Arg Arg Thr
1905 1910 1915 1920

Ile Leu Thr Ala Ile His Cys Phe Pro Tyr Val Lys Lys Arg Ile Pro
1925 1930 1935

Val Met Tyr Gln His His Thr Asp Leu Asn Pro Ile Glu Val Ala Ile
1940 1945 1950

Asp Glu Met Ser Lys Lys Val Ala Glu Leu Arg Gln Leu Cys Ser Ser
1955 1960 1965

Ala Glu Val Asp Met Ile Lys Leu Gln Leu Lys Leu Gln Gly Ser Val
1970 1975 1980

Ser Val Gln Val Asn Ala Gly Pro Leu Ala Tyr Ala Arg Ala Phe Leu
1985 1990 1995 2000

Asp Asp Thr Asn Thr Lys Arg Tyr Pro Asp Asn Lys Val Lys Leu Leu
2005 2010 2015

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Val Asn Glu Arg Leu Ile Lys Glu Asp Gln Leu Glu Tyr Gln Glu Glu
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Met Lys Ala Asn Tyr Arg Glu Met Ala Lys Glu Leu Ser Glu Ile Met
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His Glu Gln Ile Cys Pro Leu Glu Glu Lys Thr Ser Val Leu Pro Asn
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Thr Asp Tyr Gly Gln Val Phe Thr Tyr Lys Gln Ser Thr Ile Thr His
         35                  40                  45

Gln Lys Val Thr Ala Met His Pro Thr Asn Glu Glu Gly Val Asp Asp
     50                  55                  60

Met Ala Ser Leu Thr Glu Leu His Gly Gly Ser Ile Met Tyr Asn Leu
 65                  70                  75                  80

Phe Gln Arg Tyr Lys Arg Asn Gln Ile Trp Thr Tyr Ile Gly Ser Ile
                 85                  90                  95

Leu Ala Ser Val Asn Pro Tyr Gln Pro Ile Ala Gly Leu Tyr Glu Pro
            100                 105                 110

Ala Thr Met Glu Gln Tyr Ser Arg Arg His Leu Gly Glu Leu Pro Pro
        115                 120                 125

His Ile Phe Ala Ile Ala Asn Glu Cys Tyr Arg Cys Leu Trp Lys Arg
    130                 135                 140

His Asp Asn Gln Cys Ile Leu Ile Lys Gly Glu Ser Gly Ala Gly Lys
145                 150                 155                 160

Thr Glu Ser Thr Lys Leu Ile Leu Lys Phe Leu Ser Val Ile Ser Gln
                165                 170                 175

Gln Ser Leu Glu Leu Ser Leu Lys Glu Lys Thr Ser Cys Val Glu Arg
            180                 185                 190

Ala Ile Leu Glu Ser Ser Pro Ile Met Glu Ala Phe Gly Asn Ala Lys
        195                 200                 205

Thr Val Tyr Asn Asn Asn Ser Ser Arg Phe Gly Lys Phe Val Gln Leu
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Asn Ile Cys Gln Lys Gly Asn Ile Gln Gly Gly Arg Ile Val Asp Cys
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Ile Leu Ser Ser Gln Asn Arg Val Val Arg Gln Asn Pro Gly Glu Arg
                245                 250                 255

Asn Tyr His Ile Phe Tyr Ala Leu Leu Ala Gly Leu Glu His Glu Glu
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Arg Glu Glu Phe Tyr Leu Ser Thr Pro Glu Asn Tyr His Tyr Leu Asn
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Gln Ser Gly Cys Val Glu Asp Lys Thr Ile Ser Asp Gln Glu Ser Phe
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Arg Glu Val Ile Thr Ala Met Asp Val Met Gln Phe Ser Lys Glu Glu
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Val Arg Glu Val Ser Arg Leu Leu Ala Gly Ile Leu His Leu Gly Asn
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Ile Glu Phe Ile Thr Ala Gly Gly Ala Gln Val Ser Phe Lys Thr Ala
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Leu Gly Arg Ser Ala Glu Leu Leu Gly Leu Asp Pro Thr Gln Leu Thr
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Asp Ala Leu Thr Gln Arg Ser Met Phe Leu Arg Gly Glu Glu Ile Leu
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Thr Pro Leu Asn Val Gln Gln Ala Val Asp Ser Arg Asp Ser Leu Ala
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Met Ala Leu Tyr Ala Cys Cys Phe Glu Trp Val Ile Lys Lys Ile Asn
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Ser Arg Ile Lys Gly Asn Glu Asp Phe Lys Ser Ile Gly Ile Leu Asp
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Ile Phe Gly Phe Glu Asn Phe Glu Val Asn His Phe Glu Gln Phe Asn
435 440 445

Ile Asn Tyr Ala Asn Glu Lys Leu Gln Glu Tyr Phe Asn Lys His Ile
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Phe Ser Leu Glu Gln Leu Glu Tyr Ser Arg Glu Gly Leu Val Trp Glu
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Asp Ile Asp Trp Ile Asp Asn Gly Glu Cys Leu Asp Leu Ile Glu Lys
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Lys Leu Gly Leu Leu Ala Leu Ile Asn Glu Glu Ser His Phe Pro Gln
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Ala Thr Asp Ser Thr Leu Leu Glu Lys Leu His Ser Gln His Ala Asn
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Asn His Phe Tyr Val Lys Pro Arg Val Ala Val Asn Asn Phe Gly Val
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Lys His Tyr Ala Gly Glu Val Gln Tyr Asp Val Arg Gly Ile Leu Glu
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Lys Asn Arg Asp Thr Phe Arg Asp Asp Leu Leu Asn Leu Leu Arg Glu
565 570 575

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Ser Arg Phe Asp Phe Ile Tyr Asp Leu Phe Glu His Val Ser Ser Arg
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Asn Asn Gln Asp Thr Leu Lys Cys Gly Ser Lys His Arg Arg Pro Thr
        595                 600                 605

Val Ser Ser Gln Phe Lys Val Asp Ser Leu His Ser Leu Met Ala Thr
    610                 615                 620

Leu Ser Ser Ser Asn Pro Phe Phe Val Arg Cys Ile Lys Pro Asn Met
625                 630                 635                 640

Gln Lys Met Pro Asp Gln Phe Asp Gln Ala Val Val Leu Asn Gln Leu
                645                 650                 655

Arg Tyr Ser Gly Met Leu Glu Thr Val Arg Ile Arg Lys Ala Gly Tyr
            660                 665                 670

Ala Val Arg Arg Pro Phe Gln Asp Phe Tyr Lys Arg Tyr Lys Val Leu
        675                 680                 685

Met Arg Asn Leu Ala Leu Pro Glu Asp Val Arg Gly Lys Cys Thr Ser
    690                 695                 700

Leu Leu Gln Leu Tyr Asp Ala Ser Asn Ser Glu Trp Gln Leu Gly Lys
705                 710                 715                 720

Thr Lys Val Phe Leu Arg Glu Ser Leu Glu Gln Lys Leu Glu Lys Arg
                725                 730                 735

Arg Glu Glu Glu Val Ser His Ala Ala Met Val Ile Arg Ala His Val
            740                 745                 750

Leu Gly Phe Leu Ala Arg Lys Gln Tyr Arg Lys Val Leu Tyr Cys Val
        755                 760                 765

Val Ile Ile Gln Lys Asn Tyr Arg Ala Phe Leu Leu Arg Arg Arg Phe
    770                 775                 780

Leu His Leu Lys Lys Ala Ala Ile Val Phe Gln Lys Gln Leu Arg Gly
785                 790                 795                 800

Gln Ile Ala Arg Arg Val Tyr Arg Gln Leu Leu Ala Glu Lys Arg Glu
                805                 810                 815

Gln Glu Glu Lys Lys Lys Gln Glu Glu Glu Glu Lys Lys Lys Arg Glu
            820                 825                 830

Glu Glu Glu Arg Glu Arg Glu Arg Glu Arg Arg Glu Ala Glu Leu Arg
        835                 840                 845

Ala Gln Gln Glu Glu Glu Thr Arg Lys Gln Gln Glu Leu Glu Ala Leu
    850                 855                 860

Gln Lys Ser Gln Lys Glu Ala Glu Leu Thr Arg Glu Leu Glu Lys Gln
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Lys Glu Asn Lys Gln Val Glu Glu Ile Leu Arg Leu Glu Lys Glu Ile
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Glu Asp Leu Gln Arg Met Lys Glu Gln Gln Glu Leu Ser Leu Thr Glu
            900                 905                 910

Ala Ser Leu Gln Lys Leu Gln Glu Arg Arg Asp Gln Glu Leu Arg Arg
        915                 920                 925

Leu Glu Glu Glu Ala Cys Arg Ala Ala Gln Glu Phe Leu Glu Ser Leu
    930                 935                 940

Asn Phe Asp Glu Ile Asp Glu Cys Val Arg Asn Ile Glu Arg Ser Leu
945                 950                 955                 960

Ser Gly Gly Ser Glu Phe Ser Ser Glu Leu Ala Glu Ser Ala Cys Glu
                965                 970                 975

Glu Lys Pro Asn Phe Asn Phe Ser Gln Pro Tyr Pro Glu Glu Glu Val
            980                 985                 990

Asp Glu Gly Phe Glu Ala Asp Asp Asp Ala Phe Lys Asp Ser Pro Asn
        995                1000                1005

Pro Ser Glu His Gly His Ser Asp Gln Arg Thr Ser Gly Ile Arg Thr
   1010                1015                1020

Ser Asp Asp Ser Ser Glu Glu Asp Pro Tyr Met Asn Asp Thr Val Val
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Pro Thr Ser Pro Ser Ala Asp Ser Thr Val Leu Leu Ala Pro Ser Val
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Gln Asp Ser Gly Ser Leu His Asn Ser Ser Ser Gly Glu Ser Thr Tyr
            1060                1065                1070

Cys Met Pro Gln Asn Ala Gly Asp Leu Pro Ser Pro Asp Gly Asp Tyr
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Asp Tyr Asp Gln Asp Asp Tyr Glu Asp Gly Ala Ile Thr Ser Gly Ser
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Ser Val Thr Phe Ser Asn Ser Tyr Gly Ser Gln Trp Ser Pro Asp Tyr
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Arg Cys Ser Val Gly Thr Tyr Asn Ser Ser Gly Ala Tyr Arg Phe Ser
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Ser Glu Gly Ala Gln Ser Ser Phe Glu Asp Ser Glu Glu Asp Phe Asp
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Ser Arg Phe Asp Thr Asp Asp Glu Leu Ser Tyr Arg Arg Asp Ser Val
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Tyr Ser Cys Val Thr Leu Pro Tyr Phe His Ser Phe Leu Tyr Met Lys
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Glu Thr Phe Leu Trp Phe Arg Ser Lys Gln Glu Ala Leu Lys Gln Gly
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Trp Leu His Lys Lys Gly Gly Gly Ser Ser Thr Leu Ser Arg Arg Asn
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Trp Lys Lys Arg Trp Phe Val Leu Arg Gln Ser Lys Leu Met Tyr Phe
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Glu Asn Asp Ser Glu Glu Lys Leu Lys Gly Thr Val Glu Val Arg Thr
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Ala Lys Glu Ile Ile Asp Asn Thr Thr Lys Glu Asn Gly Ile Asp Ile
1265                1270                1275                1280

Ile Met Ala Asp Arg Thr Phe His Leu Ile Ala Glu Ser Pro Glu Asp
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Ala Ser Gln Trp Phe Ser Val Leu Ser Gln Val His Ala Ser Thr Asp
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Gln Glu Ile Gln Glu Met His Asp Glu Gln Ala Asn Pro Gln Asn Ala
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Val Gly Thr Leu Asp Val Gly Leu Ile Asp Ser Val Cys Ala Ser Asp
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Ser Pro Asp Arg Pro Asn Ser Phe Val Ile Ile Thr Ala Asn Arg Val
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Leu His Cys Asn Ala Asp Thr Pro Glu Glu Met His His Trp Ile Thr
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Leu Leu Gln Arg Ser Lys Gly Asp Thr Arg Val Glu Gly Gln Glu Phe
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Ile Val Arg Gly Trp Leu His Lys Glu Val Lys Asn Ser Pro Lys Met
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Ser Ser Leu Lys Leu Lys Lys Arg Trp Phe Val Leu Thr His Asn Ser
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Leu Asp Tyr Tyr Lys Ser Ser Glu Lys Asn Ala Leu Lys Leu Gly Thr
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Leu Val Leu Asn Ser Leu Cys Ser Val Val Pro Pro Asp Glu Lys Ile
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Phe Lys Glu Thr Gly Tyr Trp Asn Val Thr Val Tyr Gly Arg Lys His
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Cys Tyr Arg Leu Tyr Thr Lys Leu Leu Asn Glu Ala Thr Arg Trp Ser
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Val Val Glu Gln Ile Tyr Lys Arg Asn Pro Ile Leu Arg Tyr Thr His
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His Pro Leu His Ser Pro Leu Leu Pro Leu Pro Tyr Gly Asp Ile Asn
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Leu Asn Leu Leu Lys Asp Lys Gly Tyr Thr Thr Leu Gln Asp Glu Ala
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Ile Lys Ile Phe Asn Ser Leu Gln Gln Leu Glu Ser Met Ser Asp Pro
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Pro His Pro Gly Ser Val Gly Asn Leu Tyr Ser Trp Gln Ile Leu Thr
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Arg Glu Phe Val Pro Ser Arg Asp Glu Ile Glu Ala Leu Ile His Arg
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Ile Thr Ile Asn Ser His Thr Thr Ala Gly Glu Val Val Glu Lys Leu
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Ile Arg Gly Leu Ala Met Glu Asp Ser Arg Asn Met Phe Ala Leu Phe
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Asn Phe Asp Glu Ile Asp Glu Cys Val Arg Asn Ile Glu Arg Ser Leu
945 950 955 960

Ser Gly Gly Ser Glu Phe Ser Ser Glu Leu Ala Glu Ser Ala Cys Glu
965 970 975

Glu Lys Pro Asn Phe Asn Phe Ser Gln Pro Tyr Pro Glu Glu Glu Val
980 985 990

Asp Glu Gly Phe Glu Ala Asp Asp Asp Ala Phe Lys Asp Ser Pro Asn
995 1000 1005

Pro Ser Glu His Gly His Ser Asp Gln Arg Thr Ser Gly Ile Arg Thr
1010 1015 1020

Ser Asp Asp Ser Ser Glu Glu Asp Pro Tyr Met Asn Asp Thr Val Val
1025 1030 1035 1040

Pro Thr Ser Pro Ser Ala Asp Ser Thr Val Leu Leu Ala Pro Ser Val
1045 1050 1055

Gln Asp Ser Gly Ser Leu His Asn Ser Ser Ser Gly Glu Ser Thr Tyr
1060 1065 1070

Cys Met Pro Gln Asn Ala Gly Asp Leu Pro Ser Pro Asp Gly Asp Tyr
1075 1080 1085

Asp Tyr Asp Gln Asp Asp Tyr Glu Asp Gly Ala Ile Thr Ser Gly Ser
1090 1095 1100

Ser Val Thr Phe Ser Asn Ser Tyr Gly Ser Gln Trp Ser Pro Asp Tyr
1105 1110 1115 1120

Arg Cys Ser Val Gly Thr Tyr Asn Ser Ser Gly Ala Tyr Arg Phe Ser
1125 1130 1135

Ser Glu Gly Ala Gln Ser Ser Phe Glu Asp Ser Glu Glu Asp Phe Asp
1140 1145 1150

Ser Arg Phe Asp Thr Asp Asp Glu Leu Ser Tyr Arg Arg Asp Ser Val
1155 1160 1165

Tyr Ser Cys Val Thr Leu Pro Tyr Phe His Ser Phe Leu Tyr Met Lys
1170 1175 1180

Gly Gly Leu Met Asn Ser Trp Lys Arg Arg Trp Cys Val Leu Lys Asp
1185 1190 1195 1200

Glu Thr Phe Leu Trp Phe Arg Ser Lys Gln Glu Ala Leu Lys Gln Gly
1205 1210 1215

Trp Leu His Lys Lys Gly Gly Gly Ser Ser Thr Leu Ser Arg Arg Asn
1220 1225 1230

Trp Lys Lys Arg Trp Phe Val Leu Arg Gln Ser Lys Leu Met Tyr Phe
1235 1240 1245

Glu Asn Asp Ser Glu Glu Lys Leu Lys Gly Thr Val Glu Val Arg Thr
1250 1255 1260

Ala Lys Glu Ile Ile Asp Asn Thr Thr Lys Glu Asn Gly Ile Asp Ile
1265 1270 1275 1280

Ile Met Ala Asp Arg Thr Phe His Leu Ile Ala Glu Ser Pro Glu Asp
1285 1290 1295

Ala Ser Gln Trp Phe Ser Val Leu Ser Gln Val His Ala Ser Thr Asp
1300 1305 1310

Gln Glu Ile Gln Glu Met His Asp Glu Gln Ala Asn Pro Gln Asn Ala
1315 1320 1325

Val Gly Thr Leu Asp Val Gly Leu Ile Asp Ser Val Cys Ala Ser Asp
1330 1335 1340

Ser Pro Asp Arg Pro Asn Ser Phe Val Ile Ile Thr Ala Asn Arg Val
1345 1350 1355 1360

Leu His Cys Asn Ala Asp Thr Pro Glu Glu Met His His Trp Ile Thr
1365 1370 1375

Leu Leu Gln Arg Ser Lys Gly Asp Thr Arg Val Glu Gly Gln Glu Phe
1380 1385 1390

Ile Val Arg Gly Trp Leu His Lys Glu Val Lys Asn Ser Pro Lys Met
1395 1400 1405

Ser Ser Leu Lys Leu Lys Lys Arg Trp Phe Val Leu Thr His Asn Ser
1410 1415 1420

Leu Asp Tyr Tyr Lys Ser Ser Glu Lys Asn Ala Leu Lys Leu Gly Thr
1425 1430 1435 1440

Leu Val Leu Asn Ser Leu Cys Ser Val Val Pro Pro Asp Glu Lys Ile
1445 1450 1455

Phe Lys Glu Thr Gly Tyr Trp Asn Val Thr Val Tyr Gly Arg Lys His
1460 1465 1470

Cys Tyr Arg Leu Tyr Thr Lys Leu Leu Asn Glu Ala Thr Arg Trp Ser
1475 1480 1485

Ser Val Ile Gln Asn Val Thr Asp Thr Lys Ala Pro Ile Asp Thr Pro
1490 1495 1500

Thr Gln Gln Leu Ile Gln Asp Ile Lys Glu Asn Cys Leu Asn Ser Asp
1505 1510 1515 1520

Val Val Glu Gln Ile Tyr Lys Arg Asn Pro Ile Leu Arg Tyr Thr His
1525 1530 1535

His Pro Leu His Ser Pro Leu Leu Pro Leu Pro Tyr Gly Asp Ile Asn
1540 1545 1550

Leu Asn Leu Leu Lys Asp Lys Gly Tyr Thr Thr Leu Gln Asp Glu Ala
1555 1560 1565

Ile Lys Ile Phe Asn Ser Leu Gln Gln Leu Glu Ser Met Ser Asp Pro
1570 1575 1580

Ile Pro Ile Ile Gln Gly Ile Leu Gln Thr Gly His Asp Leu Arg Pro
1585 1590 1595 1600

Leu Arg Asp Glu Leu Tyr Cys Gln Leu Ile Lys Gln Thr Asn Lys Val
1605 1610 1615

Pro His Pro Gly Ser Val Gly Asn Leu Tyr Ser Trp Gln Ile Leu Thr
1620 1625 1630

Cys Leu Ser Cys Thr Phe Leu Pro Ser Arg Gly Ile Leu Lys Tyr Leu
1635 1640 1645

Lys Phe His Leu Lys Arg Ile Arg Glu Gln Phe Pro Gly Thr Glu Met
1650 1655 1660

Glu Lys Tyr Ala Leu Phe Thr Tyr Glu Ser Leu Lys Lys Thr Lys Cys
1665 1670 1675 1680

Arg Glu Phe Val Pro Ser Arg Asp Glu Ile Glu Ala Leu Ile His Arg
1685 1690 1695

Gln Glu Met Thr Ser Thr Val Tyr Cys His Gly Gly Gly Ser Cys Lys
1700 1705 1710

Ile Thr Ile Asn Ser His Thr Thr Ala Gly Glu Val Val Glu Lys Leu
1715 1720 1725

Ile Arg Gly Leu Ala Met Glu Asp Ser Arg Asn Met Phe Ala Leu Phe
1730 1735 1740

Glu Tyr Asn Gly His Val Asp Lys Ala Ile Glu Ser Arg Thr Val Val
1745 1750 1755 1760

Ala Asp Val Leu Ala Lys Phe Glu Lys Leu Ala Ala Thr Ser Glu Val
1765 1770 1775

Gly Asp Leu Pro Trp Lys Phe Tyr Phe Lys Leu Tyr Cys Phe Leu Asp
1780 1785 1790

Thr Asp Asn Val Pro Lys Asp Ser Val Glu Phe Ala Phe Met Phe Glu
1795 1800 1805

Gln Ala His Glu Ala Val Ile His Gly His His Pro Ala Pro Glu Glu
1810 1815 1820

Asn Leu Gln Val Leu Ala Ala Leu Arg Leu Gln Tyr Leu Gln Gly Asp
1825 1830 1835 1840

Tyr Thr Leu His Ala Ala Ile Pro Pro Leu Glu Glu Val Tyr Ser Leu
1845 1850 1855

Gln Arg Leu Lys Ala Arg Ile Ser Gln Ser Thr Lys Thr Phe Thr Pro
1860 1865 1870

Cys Glu Arg Leu Glu Lys Arg Arg Thr Ser Phe Leu Glu Gly Thr Leu
1875 1880 1885

Arg Arg Ser Phe Arg Thr Gly Ser Val Val Arg Gln Lys Val Glu Glu
1890 1895 1900

Glu Gln Met Leu Asp Met Trp Ile Lys Glu Glu Val Ser Ser Ala Arg
1905 1910 1915 1920

Ala Ser Ile Ile Asp Lys Trp Arg Lys Phe Gln Gly Met Asn Gln Glu
1925 1930 1935

Gln Ala Met Ala Lys Tyr Met Ala Leu Ile Lys Glu Trp Pro Gly Tyr
1940 1945 1950

Gly Ser Thr Leu Phe Asp Val Glu Val Arg Thr Gly Cys His Val Leu
1955 1960 1965

Gly Trp Ala Gly Cys Trp His Leu Arg Thr Trp Ile Thr Ala Lys Phe
1970 1975 1980

Met Trp Arg Glu Asp Lys Met Glu His Phe Ala Leu Ser Thr Ser Phe
1985 1990 1995 2000

Phe Arg Ala Pro Lys Ile Val Pro Leu Thr Pro Pro Phe Ser Ser Gln
2005 2010 2015

Phe Leu Phe Ser Cys Val Val Asn Ala Ser Val Ile Leu Gly Met Asn
2020 2025 2030

Ala Lys Leu Arg Cys His Leu Phe Phe Tyr Pro Ser Leu Gly Lys Leu
2035 2040 2045

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<212> DNA
<213> Homo sapiens

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ttttcggcca ccgctcgctt caatatggct gcccccaggg agagacgagg ctaccatgaa 180
ggagccgagc gcagaccctg agtccgtcac ccatggatcg cagcgcggag ttcaggaaat 240
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gttgctggct actggttaca cacaaacttt gtgtaaaaga tgatgtgatt gtagctctga 480
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actgcctaca gcatgctttg gaaagggaaa cgatgactaa cttacatccc aagatcaaag 840
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taaatcaaag atgtttgaaa aaaaaaaa 1288

<210> 14
<211> 259
<212> PRT
<213> Homo sapiens

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Lys Ala Asp Leu Ser Arg Lys Gly Ser Val Asp Glu Asp Val Val Glu
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Leu Val Gln Phe Leu Asn Met Arg Asp Gln Phe Phe Thr Thr Ser Ser
35 40 45

Phe Ala Gly Arg Ile Leu Leu Leu Asp Arg Gly Ile Asn Gly Phe Glu
50 55 60

Val Gln Lys Gln Asn Cys Cys Trp Leu Leu Val Thr His Lys Leu Cys
65 70 75 80

Val Lys Asp Asp Val Ile Val Ala Leu Lys Lys Ala Asn Gly Asp Ala
85 90 95

Thr Leu Lys Phe Glu Pro Phe Val Leu His Val Gln Cys Arg Gln Leu
100 105 110

Gln Asp Ala Gln Ile Leu His Ser Met Ala Ile Asp Ser Gly Phe Arg
115 120 125

Asn Ser Gly Ile Thr Val Gly Lys Arg Gly Lys Thr Met Leu Ala Val
130 135 140

Arg Ser Thr His Gly Leu Glu Val Pro Leu Ser His Lys Gly Lys Leu
145 150 155 160

Met Val Thr Glu Glu Tyr Ile Asp Phe Leu Leu Asn Val Ala Asn Gln
165 170 175

Lys Met Glu Glu Asn Lys Lys Arg Ile Glu Arg Phe Tyr Asn Cys Leu
180 185 190

Gln His Ala Leu Glu Arg Glu Thr Met Thr Asn Leu His Pro Lys Ile
195 200 205

Lys Glu Lys Asn Asn Ser Ser Tyr Ile His Lys Lys Lys Arg Asn Pro
210 215 220

Glu Lys Thr Arg Ala Gln Cys Ile Thr Lys Glu Ser Asp Glu Glu Leu
225 230 235 240

Glu Asn Asp Asp Asp Asp Asp Leu Gly Ile Asn Val Thr Ile Phe Pro
245 250 255

Glu Asp Tyr

<210> 15
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<212> DNA
<213> Homo sapiens

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gaaatgagaa tcaggatgaa agtcaaactt ctgcatcctc ttgtgatgag actgagatac 300
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aaggtgcaag actgtccgtg tggaccctga ctcacagaga atcattcaga gataaaaata 420
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aacctggaaa aaataaaaga actgcaatca ctactccaaa ctttaagaag cttcatgaag 660
ctcattttaa ggaaatggag tccattgatc caatatatng aggagaaaaa aagaaacatt 720
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cagttccctc ttatcgtact aatattaaca gaactgcagt cttctgctag ccaatagcat 1800
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tatgtacctt cgttcaaata tcctcatgta attgccatct gtcactcact atattcacaa 2040

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tagtatcatg tccatgtttc cttcacctca gtggagcttc tgagttttat actgctcaag 2280
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aaaaaaaaaa aa 2352

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<213> Homo sapiens

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Leu Gln Asn Leu Ala Lys Ser Leu Gly Leu Arg Ala Asn Leu Arg Ala
20 25 30

Thr Lys Leu Leu Lys Ala Leu Lys Gly Tyr Ile Lys His Glu Ala Arg
35 40 45

Lys Gly Asn Glu Asn Gln Asp Glu Ser Gln Thr Ser Ala Ser Ser Cys
50 55 60

Asp Glu Thr Glu Ile Gln Ile Ser Asn Gln Glu Glu Ala Glu Arg Gln
65 70 75 80

Pro Leu Gly His Val Thr Lys Thr Arg Arg Arg Cys Lys Thr Val Arg
85 90 95

Val Asp Pro Asp Ser Gln Gln Asn His Ser Glu Ile Lys Ile Ser Asn
100 105 110

Pro Thr Glu Phe Gln Asn His Glu Lys Gln Glu Ser Gln Asp Leu Arg
115 120 125

Ala Thr Ala Lys Val Pro Ser Pro Pro Asp Glu His Gln Glu Ala Glu
130 135 140

Asn Ala Val Ser Ser Gly Asn Arg Asp Ser Lys Val Pro Ser Glu Gly
145 150 155 160

Lys Lys Ser Leu Tyr Thr Asp Glu Ser Ser Lys Pro Gly Lys Asn Lys
165 170 175

Arg Thr Ala Ile Thr Thr Pro Asn Phe Lys Lys Leu His Glu Ala His
180 185 190

Phe Lys Glu Met Glu Ser Ile Asp Pro Ile Tyr Xaa Gly Glu Lys Lys
195 200 205

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Lys His Phe Glu Glu His Asn Ser Met Asn Glu Leu Lys Gln Pro Pro
 210                 215                 220

Ile Asn Lys Gly Gly Val Arg Thr Pro Val Pro Pro Arg Gly Arg Leu
225                 230                 235                 240

Ser Val Ala Ser Thr Pro Ile Ser Gln Arg Arg Ser Gln Gly Arg Ser
                245                 250                 255

Cys Gly Pro Ala Ser Gln Ser Thr Leu Gly Leu Lys Gly Ser Leu Lys
            260                 265                 270

Arg Ser Ala Ile Ser Ala Ala Lys Thr Gly Val Arg Phe Ser Ala Ala
        275                 280                 285

Thr Lys Asp Asn Glu His Lys Arg Ser Leu Thr Lys Thr Pro Ala Arg
    290                 295                 300

Lys Ser Ala His Val Thr Val Ser Gly Gly Thr Gln Lys Gly Glu Ala
305                 310                 315                 320

Val Leu Gly Thr His Lys Leu Lys Thr Ile Thr Gly Asn Ser Ala Ala
                325                 330                 335

Val Ile Thr Pro Phe Lys Leu Thr Thr Glu Ala Thr Gln Thr Pro Val
            340                 345                 350

Ser Asn Lys Lys Pro Val Phe Asp Leu Lys Ala Ser Leu Ser Arg Pro
        355                 360                 365

Leu Asn Tyr Glu Pro His Lys Gly Lys Leu Lys Pro Trp Gly Gln Ser
    370                 375                 380

Lys Glu Asn Asn Tyr Leu Asn Gln His Val Asn Arg Ile Asn Phe Tyr
385                 390                 395                 400

Lys Lys Thr Tyr Lys Gln Pro His Leu Gln Thr Lys Glu Glu Gln Arg
                405                 410                 415

Lys Lys Arg Glu Gln Glu Arg Lys Glu Lys Lys Ala Lys Val Leu Gly
            420                 425                 430

Met Arg Arg Gly Leu Ile Leu Ala Glu Asp
        435                 440
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<210> 17
<211> 2058
<212> PRT
<213> Homo sapiens

<400> 17

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Met Asp Asn Phe Phe Thr Glu Gly Thr Arg Val Trp Leu Arg Glu Asn
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Gly Gln His Phe Pro Ser Thr Val Asn Ser Cys Ala Glu Gly Ile Val
            20                  25                  30
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Val Phe Arg Thr Asp Tyr Gly Gln Val Phe Thr Tyr Lys Gln Ser Thr
         35                  40                  45

Ile Thr His Gln Lys Val Thr Ala Met His Pro Thr Asn Glu Glu Gly
     50                  55                  60

Val Asp Asp Met Ala Ser Leu Thr Glu Leu His Gly Gly Ser Ile Met
 65                  70                  75                  80

Tyr Asn Leu Phe Gln Arg Tyr Lys Arg Asn Gln Ile Tyr Thr Tyr Ile
                 85                  90                  95

Gly Ser Ile Leu Ala Ser Val Asn Pro Tyr Gln Pro Ile Ala Gly Leu
            100                 105                 110

Tyr Glu Pro Ala Thr Met Glu Gln Tyr Ser Arg Arg His Leu Gly Glu
        115                 120                 125

Leu Pro Pro His Ile Phe Ala Ile Ala Asn Glu Cys Tyr Arg Cys Leu
    130                 135                 140

Trp Lys Arg Tyr Asp Asn Gln Cys Ile Leu Ile Ser Gly Glu Ser Gly
145                 150                 155                 160

Ala Gly Lys Thr Glu Ser Thr Lys Leu Ile Leu Lys Phe Leu Ser Val
                165                 170                 175

Ile Ser Gln Gln Ser Leu Glu Leu Ser Leu Lys Glu Lys Thr Ser Cys
            180                 185                 190

Val Glu Arg Ala Ile Leu Glu Ser Ser Pro Ile Met Glu Ala Phe Gly
        195                 200                 205

Asn Ala Lys Thr Val Tyr Asn Asn Asn Ser Ser Arg Phe Gly Lys Phe
    210                 215                 220

Val Gln Leu Asn Ile Cys Gln Lys Gly Asn Ile Gln Gly Gly Arg Ile
225                 230                 235                 240

Val Asp Tyr Leu Leu Glu Lys Asn Arg Val Val Arg Gln Asn Pro Gly
                245                 250                 255

Glu Arg Asn Tyr His Ile Phe Tyr Ala Leu Leu Ala Gly Leu Glu His
            260                 265                 270

Glu Glu Arg Glu Glu Phe Tyr Leu Ser Thr Pro Glu Asn Tyr His Tyr
        275                 280                 285

Leu Asn Gln Ser Gly Cys Val Glu Asp Lys Thr Ile Ser Asp Gln Glu
    290                 295                 300

Ser Phe Arg Glu Val Ile Thr Ala Met Asp Val Met Gln Phe Ser Lys
305                 310                 315                 320

Glu Glu Val Arg Glu Val Ser Arg Leu Leu Ala Gly Ile Leu His Leu
                325                 330                 335
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Gly Asn Ile Glu Phe Ile Thr Ala Gly Gly Ala Gln Val Ser Phe Lys
            340                 345                 350

Thr Ala Leu Gly Arg Ser Ala Glu Leu Leu Gly Leu Asp Pro Thr Gln
        355                 360                 365

Leu Thr Asp Ala Leu Thr Gln Arg Ser Met Phe Leu Arg Gly Glu Glu
    370                 375                 380

Ile Leu Thr Pro Leu Asn Val Gln Gln Ala Val Asp Ser Arg Asp Ser
385                 390                 395                 400

Leu Ala Met Ala Leu Tyr Ala Cys Cys Phe Glu Trp Val Ile Lys Lys
                405                 410                 415

Ile Asn Ser Arg Ile Lys Gly Asn Glu Asp Phe Lys Ser Ile Gly Ile
            420                 425                 430

Leu Asp Ile Phe Gly Phe Glu Asn Phe Glu Val Asn His Phe Glu Gln
        435                 440                 445

Phe Asn Ile Asn Tyr Ala Asn Glu Lys Leu Gln Glu Tyr Phe Asn Lys
    450                 455                 460

His Ile Phe Ser Leu Glu Gln Leu Glu Tyr Ser Arg Glu Gly Leu Val
465                 470                 475                 480

Trp Glu Asp Ile Asp Trp Ile Asp Asn Gly Glu Cys Leu Asp Leu Ile
                485                 490                 495

Glu Lys Lys Leu Gly Leu Leu Ala Leu Ile Asn Glu Glu Ser His Phe
            500                 505                 510

Pro Gln Ala Thr Asp Ser Thr Leu Leu Glu Lys Leu His Ser Gln His
        515                 520                 525

Ala Asn Asn His Phe Tyr Val Lys Pro Arg Val Ala Val Asn Asn Phe
    530                 535                 540

Gly Val Lys His Tyr Ala Gly Glu Val Gln Tyr Asp Val Arg Gly Ile
545                 550                 555                 560

Leu Glu Lys Asn Arg Asp Thr Phe Arg Asp Asp Leu Leu Asn Leu Leu
                565                 570                 575

Arg Glu Ser Arg Phe Asp Phe Ile Tyr Asp Leu Phe Glu His Val Ser
            580                 585                 590

Ser Arg Asn Asn Gln Asp Thr Leu Lys Cys Gly Ser Lys His Arg Arg
        595                 600                 605

Pro Thr Val Ser Ser Gln Phe Lys Asp Ser Leu His Ser Leu Met Ala
    610                 615                 620

Thr Leu Ser Ser Ser Asn Pro Phe Phe Val Arg Cys Ile Lys Pro Asn
625                 630                 635                 640
```

```
Met Gln Lys Met Pro Asp Gln Phe Asp Gln Ala Val Val Leu Asn Gln
                645                 650                 655

Leu Arg Tyr Ser Gly Met Leu Glu Thr Val Arg Ile Arg Lys Ala Gly
            660                 665                 670

Tyr Ala Val Arg Arg Pro Phe Gln Asp Phe Tyr Lys Arg Tyr Lys Val
        675                 680                 685

Leu Met Arg Asn Leu Ala Leu Pro Glu Asp Val Arg Gly Lys Cys Thr
    690                 695                 700

Ser Leu Leu Gln Leu Tyr Asp Ala Ser Asn Ser Glu Trp Gln Leu Gly
705                 710                 715                 720

Lys Thr Lys Val Phe Leu Arg Glu Ser Leu Glu Gln Lys Leu Glu Lys
                725                 730                 735

Arg Arg Glu Glu Glu Val Ser His Ala Ala Met Val Ile Arg Ala His
            740                 745                 750

Val Leu Gly Phe Leu Ala Arg Lys Gln Tyr Arg Lys Val Leu Tyr Cys
        755                 760                 765

Val Val Ile Ile Gln Lys Asn Tyr Arg Ala Phe Leu Leu Arg Arg Arg
    770                 775                 780

Phe Leu His Leu Lys Lys Ala Ala Ile Val Phe Gln Lys Gln Leu Arg
785                 790                 795                 800

Gly Gln Ile Ala Arg Arg Val Tyr Arg Gln Leu Leu Ala Glu Lys Arg
                805                 810                 815

Glu Gln Glu Glu Lys Lys Lys Gln Glu Glu Glu Glu Lys Lys Lys Arg
            820                 825                 830

Glu Glu Glu Glu Arg Glu Arg Glu Arg Glu Arg Arg Glu Ala Glu Leu
        835                 840                 845

Arg Ala Gln Gln Glu Glu Glu Thr Arg Lys Gln Gln Glu Leu Glu Ala
    850                 855                 860

Leu Gln Lys Ser Gln Lys Glu Ala Glu Leu Thr Arg Glu Leu Glu Lys
865                 870                 875                 880

Gln Lys Glu Asn Lys Gln Val Glu Glu Ile Leu Arg Leu Glu Lys Glu
                885                 890                 895

Ile Glu Asp Leu Gln Arg Met Lys Glu Gln Gln Glu Leu Ser Leu Thr
            900                 905                 910

Glu Ala Ser Leu Gln Lys Leu Gln Glu Arg Arg Asp Gln Glu Leu Arg
        915                 920                 925

Arg Leu Glu Glu Glu Ala Cys Arg Ala Ala Gln Glu Phe Leu Glu Ser
    930                 935                 940
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Leu Asn Phe Asp Glu Ile Asp Glu Cys Val Arg Asn Ile Glu Arg Ser
945 950 955 960

Leu Ser Val Gly Ser Glu Phe Ser Ser Glu Leu Ala Glu Ser Ala Cys
965 970 975

Glu Glu Lys Pro Asn Phe Asn Phe Ser Gln Pro Tyr Pro Glu Glu Glu
980 985 990

Val Asp Glu Gly Phe Glu Ala Asp Asp Asp Ala Phe Lys Asp Ser Pro
995 1000 1005

Asn Pro Ser Glu His Gly His Ser Asp Gln Arg Thr Ser Gly Ile Arg
1010 1015 1020

Thr Ser Asp Asp Ser Ser Glu Glu Asp Pro Tyr Met Asn Asp Thr Val
1025 1030 1035 1040

Val Pro Thr Ser Pro Ser Ala Asp Ser Thr Val Leu Leu Ala Pro Ser
1045 1050 1055

Val Gln Asp Ser Gly Ser Leu His Asn Ser Ser Ser Gly Glu Ser Thr
1060 1065 1070

Tyr Cys Met Pro Gln Asn Ala Gly Asp Leu Pro Ser Pro Asp Gly Asp
1075 1080 1085

Tyr Asp Tyr Asp Gln Asp Asp Tyr Glu Asp Gly Ala Ile Thr Ser Gly
1090 1095 1100

Ser Ser Val Thr Phe Ser Asn Ser Tyr Gly Ser Gln Trp Ser Pro Asp
1105 1110 1115 1120

Tyr Arg Cys Ser Val Gly Thr Tyr Asn Ser Ser Gly Ala Tyr Arg Phe
1125 1130 1135

Ser Ser Glu Gly Ala Gln Ser Ser Phe Glu Asp Ser Glu Glu Asp Phe
1140 1145 1150

Asp Ser Arg Phe Asp Thr Asp Asp Glu Leu Ser Tyr Arg Arg Asp Ser
1155 1160 1165

Val Tyr Ser Cys Val Thr Leu Pro Tyr Phe His Ser Phe Leu Tyr Met
1170 1175 1180

Lys Gly Gly Leu Met Asn Ser Trp Lys Arg Arg Trp Cys Val Leu Lys
1185 1190 1195 1200

Asp Glu Thr Phe Leu Trp Phe Arg Ser Lys Gln Glu Ala Leu Lys Gln
1205 1210 1215

Gly Trp Leu His Lys Lys Gly Gly Gly Ser Ser Thr Leu Ser Arg Arg
1220 1225 1230

Asn Trp Lys Lys Arg Trp Phe Val Leu Arg Gln Ser Lys Leu Met Tyr
1235 1240 1245

Phe Glu Asn Asp Ser Glu Glu Lys Leu Lys Gly Thr Val Glu Val Arg
1250 1255 1260

Thr Ala Lys Glu Ile Ile Asp Asn Thr Thr Lys Glu Asn Gly Ile Asp
1265 1270 1275 1280

Ile Ile Met Ala Asp Arg Thr Phe His Leu Ile Ala Glu Ser Pro Glu
1285 1290 1295

Asp Ala Ser Gln Trp Phe Ser Val Leu Ser Gln Val His Ala Ser Thr
1300 1305 1310

Asp Gln Glu Ile Gln Glu Met His Asp Glu Gln Ala Asn Pro Gln Asn
1315 1320 1325

Ala Val Gly Thr Leu Asp Val Gly Leu Ile Asp Ser Val Cys Ala Ser
1330 1335 1340

Asp Ser Pro Asp Arg Pro Asn Ser Phe Val Ile Ile Thr Ala Asn Arg
1345 1350 1355 1360

Val Leu His Cys Asn Ala Asp Thr Pro Glu Glu Met His His Trp Ile
1365 1370 1375

Thr Leu Leu Gln Arg Ser Lys Gly Asp Thr Arg Val Glu Gly Gln Glu
1380 1385 1390

Phe Ile Val Arg Gly Trp Leu His Lys Glu Val Lys Asn Ser Pro Lys
1395 1400 1405

Met Ser Ser Leu Lys Leu Lys Lys Arg Trp Phe Val Leu Thr His Asn
1410 1415 1420

Ser Leu Asp Tyr Tyr Lys Ser Ser Glu Lys Asn Ala Leu Lys Leu Gly
1425 1430 1435 1440

Thr Leu Val Leu Asn Ser Leu Cys Ser Val Val Pro Pro Asp Glu Lys
1445 1450 1455

Ile Phe Lys Glu Thr Gly Tyr Trp Asn Val Thr Val Tyr Gly Arg Lys
1460 1465 1470

His Cys Tyr Arg Leu Tyr Thr Lys Leu Leu Asn Glu Ala Thr Arg Trp
1475 1480 1485

Ser Ser Ala Ile Gln Asn Val Thr Asp Thr Lys Ala Pro Ile Asp Thr
1490 1495 1500

Pro Thr Gln Gln Leu Ile Gln Asp Ile Lys Glu Asn Cys Leu Asn Ser
1505 1510 1515 1520

Asp Val Val Glu Gln Ile Tyr Lys Arg Asn Pro Ile Leu Arg Tyr Thr
1525 1530 1535

His His Pro Leu His Ser Pro Leu Leu Pro Leu Pro Tyr Gly Asp Ile
1540 1545 1550

Asn Leu Asn Leu Leu Lys Asp Lys Gly Tyr Thr Thr Leu Gln Asp Glu
1555 1560 1565

Ala Ile Lys Ile Phe Asn Ser Leu Gln Gln Leu Glu Ser Met Ser Asp
1570 1575 1580

Pro Ile Pro Ile Ile Gln Gly Ile Leu Gln Thr Gly His Asp Leu Arg
1585 1590 1595 1600

Pro Leu Arg Asp Glu Leu Tyr Cys Gln Leu Ile Lys Gln Thr Asn Lys
1605 1610 1615

Val Pro His Pro Gly Ser Val Gly Asn Leu Tyr Ser Trp Gln Ile Leu
1620 1625 1630

Thr Cys Leu Ser Cys Thr Phe Leu Pro Ser Arg Gly Ile Leu Lys Tyr
1635 1640 1645

Leu Lys Phe His Leu Lys Arg Ile Arg Glu Gln Phe Pro Gly Thr Glu
1650 1655 1660

Met Glu Lys Tyr Ala Leu Phe Thr Tyr Glu Ser Leu Lys Lys Thr Lys
1665 1670 1675 1680

Cys Arg Glu Phe Val Pro Ser Arg Asp Glu Ile Glu Ala Leu Ile His
1685 1690 1695

Arg Gln Glu Met Thr Ser Thr Val Tyr Cys His Gly Gly Gly Ser Cys
1700 1705 1710

Lys Ile Thr Ile Asn Ser His Thr Thr Ala Gly Glu Val Val Glu Lys
1715 1720 1725

Leu Ile Arg Gly Leu Ala Met Glu Asp Ser Arg Asn Met Phe Ala Leu
1730 1735 1740

Phe Glu Tyr Asn Gly His Val Asp Lys Ala Ile Glu Ser Arg Thr Val
1745 1750 1755 1760

Val Ala Asp Val Leu Ala Lys Phe Glu Lys Leu Ala Ala Thr Ser Glu
1765 1770 1775

Val Gly Asp Leu Pro Trp Lys Phe Tyr Phe Lys Leu Tyr Cys Phe Leu
1780 1785 1790

Asp Thr Asp Asn Val Pro Lys Asp Ser Val Glu Phe Ala Phe Met Phe
1795 1800 1805

Glu Gln Ala His Glu Ala Val Ile His Gly His His Pro Ala Pro Glu
1810 1815 1820

Glu Asn Leu Gln Val Leu Ala Ala Leu Arg Leu Gln Tyr Leu Gln Gly
1825 1830 1835 1840

Asp Tyr Thr Leu His Ala Ala Ile Pro Pro Leu Glu Glu Val Tyr Ser
1845 1850 1855

Leu Gln Arg Leu Lys Ala Arg Ile Ser Gln Ser Thr Lys Thr Phe Thr
1860 1865 1870

Pro Cys Glu Arg Leu Glu Lys Arg Arg Thr Ser Phe Leu Glu Gly Thr
1875 1880 1885

Leu Arg Arg Ser Phe Arg Thr Gly Ser Val Val Arg Gln Lys Val Glu
1890 1895 1900

Glu Glu Gln Met Leu Asp Met Trp Ile Lys Glu Glu Val Ser Ser Ala
1905 1910 1915 1920

Arg Ala Ser Ile Ile Asp Lys Trp Arg Lys Phe Gln Gly Met Asn Gln
1925 1930 1935

Glu Gln Ala Met Ala Lys Tyr Met Ala Leu Ile Lys Glu Trp Pro Gly
1940 1945 1950

Tyr Gly Ser Thr Leu Phe Asp Val Glu Cys Lys Glu Gly Gly Phe Pro
1955 1960 1965

Gln Glu Leu Trp Leu Gly Val Ser Ala Asp Ala Val Ser Val Tyr Lys
1970 1975 1980

Arg Gly Glu Gly Arg Pro Leu Glu Val Phe Gln Tyr Glu His Ile Leu
1985 1990 1995 2000

Ser Phe Gly Ala Pro Leu Ala Asn Thr Tyr Lys Ile Val Val Asp Glu
2005 2010 2015

Arg Glu Leu Leu Phe Glu Thr Ser Glu Val Val Asp Val Ala Lys Leu
2020 2025 2030

Met Lys Ala Tyr Ile Ser Met Ile Val Lys Lys Arg Tyr Ser Thr Thr
2035 2040 2045

Arg Ser Ala Ser Ser Gln Gly Ser Ser Arg
2050 2055